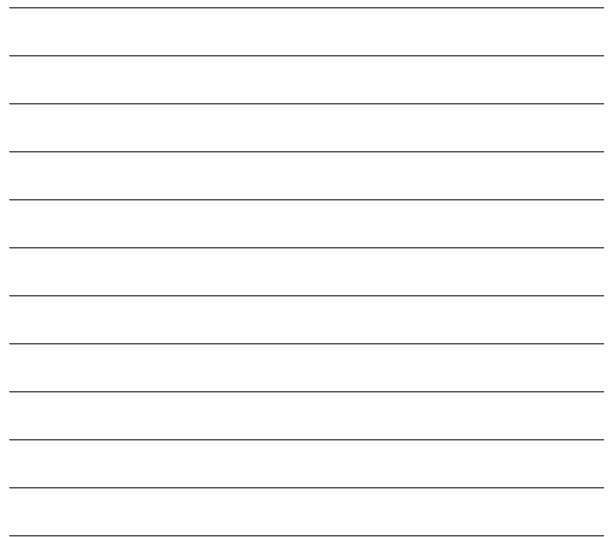


For Suffolk County Planning Federation  
Hauppauge, NY      October 30, 2002

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**Incorporate the consideration of environmental factors into an agency's decision making process at the earliest possible time**



## SEQR and Community Character?

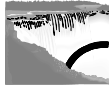
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## SEQR Defines "Environment" Broadly

**"Environmental Factors" Are Resources  
or Characteristics That Could Be  
Affected By an Action**

P Such As:

- < Land, air, water, minerals
- < Flora, fauna
- < Noise
- < Features of historic or  
aesthetic significance
- < Population patterns
- < Community character



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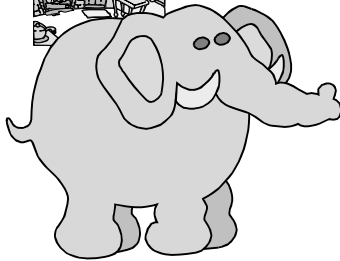
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## What Is "Consideration"?

**And How Have We Been Doing It for  
Community Character?**



P Many agencies  
simply haven't

P Few standard tools  
plus scattered case  
law have led to  
doubts about when  
and how to  
proceed

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## Just What is "Community Character"?

**Combination of Traits and Values**

P Case law that does exist addresses multiple  
aspects:

- < Aesthetic/visual resources
- < Existing land use
  - Including population settlement patterns
  - Recreation and open space
- < Historic or archaeologic resources
- < Health and safety



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## Community Character in the SEQR Regulations

### 6 NYCRR §617.7(c), Criteria for Determining Significance

P (v) the impairment of the character or quality of important historical, archeological, architectural, or aesthetic resources or of existing community or neighborhood character;

P (vii) the creation of a hazard to human health;

7

## Determining Significance

### More Community Character Criteria

P §617.7(c) (viii) a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses;

P (ix) the encouraging or attracting of a large number of people to a place or places for more than a few days, compared to the number of people who would come to such place absent the action.

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## SEQR and Community Character

### Case Law Summary

#### P I. Issues to avoid during a SEQRA review

- < A. Purely Economic Factors
- < B. Aesthetics not supported by the record/law
- < C. Other particular types of actions

#### P II. Issues concerning Community Character to address in a SEQRA review

- < A. Existing Land Use
- < B. Aesthetics
- < C. Socio-economic Impacts

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## Issues to Avoid: I

### Economic Impacts

**P Ridgewood-Bushwick Senior Citizens Council v. Giuliani**

- < New York City Department of Aging award of home care services contracts to for-profit enterprise
- < Appellate Court held: impermissible for lower court to require an assessment of the economic impacts of the action
- < "Economic injury, couched in environmental terms, is not within SEQRA's zone of interest."

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## Issues to Avoid: II

### Aesthetics Not Supported by Substantial Evidence or Local Law

**P Matter of WEOK v. Planning Board**

- < AM Radio transmitter facility with 5 radio towers
- < Applicant's DEIS - visual impact analysis concluded impacts would be minor
- < Court of Appeals held it was proper for board to consider aesthetics, however, denial must be supported by substantial evidence in the record

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## Issues to avoid: III

### Other Particular Types of Actions

- A. Siting of Correctional Facilities
- B. Homeless Shelters
- C. Community Residences
- D. Closing of Public Facilities

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## Community Character Issues for SEQRA review

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### Early, Precedent-Setting Case

#### P.H.O.M.E.S. v. New York State Urban Development Corporation

- < Syracuse Carrier Dome case - stadium size increased from 24,000 to 50,000 spectators
- < UDC failed to consider incremental increases in traffic-related impacts such as emergency vehicle access, parking, traffic stoppage and air pollution
- < Court held that the environmental review should have considered how the traffic problems would affect the existing community character

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## Community Character in SEQR - More Issues

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### Existing Land Use

#### P.Chinese Staff and Workers Association v. City of New York

- < Hallmark case concerning the proposed construction of luxury housing in Chinatown
- < "Gentrification" was identified as main impact
- < Court of Appeals held that "existing patterns of population concentration, distribution or growth and existing community or neighborhood character are physical conditions within the meaning of environment."

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## Community Character Issues: Mixed Message

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### Aesthetics & Economic Impacts

#### P.East Coast Development v. Kay, et al.

- < City of Ithaca Planning Board denied site plan approval for construction of Wal-Mart store
- < Court upheld denial based on the visual impacts to observation points of Buttermilk Falls State Park
- < The Board impermissibly considered purely economic impacts of the potential competition from the store

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## Community Character Issues: Affirmations

### Aesthetics & Economic Impacts

#### P Wal-Mart v. Planning Board for the Town of North Elba

- < Town denied siting of Wal-Mart Store
- < Impacts of empty store fronts on appearance and character of downtown a valid concern
- < Visual Impacts: permissible for town board to consider whether proposed mitigating measures in fact ameliorate adverse visual effects
- < Viewshed protected by Scenic Preservation Overlay District - local land use law provided basis for denial

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## Community Character Issues: One Final Note

### Substandard & Dilapidated Housing

#### P Matter of Susie Jackson, et al., v. City of New Rochelle et al.

- < Negative Declaration by City upheld
- < Purchase of 3 two-family houses to demolish and make room for a 58-car parking lot
- < Elimination of "substandard and dilapidated housing" would not have a significant effect on the character of the existing community

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## Community Character in Comprehensive Planning

### Taking the Initiative

- P Inventory important community as well as natural resources
- P Identify types of development the community wants to encourage or support
- P Establish standards which will facilitate that development while maintaining key community attributes



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## Hold It ... Again

But that's all planning talk -  
where is SEQR?



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## SEQR Applies to Planning & Zoning

### Adoption Is a Local Legislative Action

- P A "GEIS" (Generic Environmental Impact Statement) can be integrated with a comprehensive plan
- < Both documents require similar data base
  - < "Alternatives" analysis required for SEQR provides an opportunity to articulate bases for choices made in the plan
  - < Can satisfy SEQR for the comprehensive plan and any subsequent zoning that is consistent with the adopted plan



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## SEQR In Project Reviews After Planning & Zoning

### Articulated Standards Exist

- P Plan plus zoning standards guide project-specific SEQR analyses by local boards
- P Also provide explicit criteria for other SEQR lead agencies doing project-specific reviews
- < Is a proposed use consistent with adopted plan and current zoning?
  - < Is the design consistent with standards for the zoning or overlay district?
- P Also clarifies regulatory expectations for project sponsors



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## Community Character and Project Applications

### Deciding Body Essentially Reacting

- P Decisions must be based on facts in record plus underlying authority of deciding body
- P Decision-makers need context to evaluate community impacts during SEQR component of a project review



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## Community Character and Project Applications (2)

### Some DEC Topical Guidance Available

- P Visual resource policy
  - < Relies on established list of sensitive sites
  - < Method readily adaptable for use by other state or local entities
    - Local application depends on prior designation of key local resources
- P Noise guidance
  - < Also adaptable for use by others
  - < Again depends on established standards for sensitive receptors



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## What is the DEC Visual Impact Policy?

### Gives Staff a "How To" Guide

- P Defines visual and aesthetic impacts
- P Describes when a visual assessment is necessary
- P Explains how to review a visual assessment
- P Differentiates state v. local concerns
- P Defines avoidance, mitigation and offset measures



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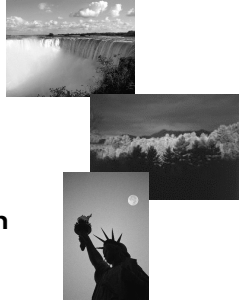
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# Visual Impact Policy

## Four Major Components:

- P Inventory of aesthetic resources of statewide significance
- P Visibility verification
- P Significance verification
- P Mitigation / minimization verification




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## Inventory

## Aesthetic Resources of Statewide Significance

- P Policy includes an inventory**
    - < known aesthetic resources
    - < under public domain by law or regulation
  - P Includes state and national designations**
  - P Example categories:**
    - < Historic or natural landmarks
    - < Parks
    - < Refuges
    - < Forest Preserve
- 




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## Visibility Verification

## Standardizes Viewshed Analysis as Method to Establish Visibility

- P5 miles generally appropriate radius for analysis**
- P Less distant viewsheds may be used in specific cases, such as:**
- < 1 mile within NYC**
  - < 3 miles on Long Island**
- 
- A topographic map showing a coastal area with contour lines and a road. The map is oriented with North at the top. The road is a single line that curves along the coast. The contour lines are closely spaced in some areas, indicating a steep slope, and more widely spaced in others, indicating a flatter area. The map is a black and white line drawing.



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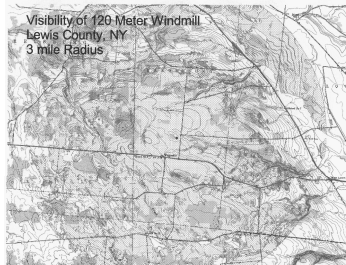
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## Viewshed Analysis

### Technology Can Help!

**P** Line-of-sight analyses based on actual conditions around site:

- < Landforms with intervening topography
- < Existing vegetation



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## Significance Verification

### Defined Tests for "Significant":

- P** May diminish public enjoyment or appreciation of an inventoried resource, or
- P** May impair the character or quality of an inventoried place.



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## Mitigation Verification

### Policy Lists Mitigation Techniques

- P** List provides basis for comparison to determine whether impacts have been "minimized to the maximum extent practicable" under NY State Environmental Quality Review Act (SEQR).
- P** Maintenance and decommissioning are included as viable techniques.
- P** Offsets are offered as an alternative where other techniques ineffective or unavailable.

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## Mitigation

### Available Techniques

**P** Policy list includes standards for design and siting options, such as:

- < Relocate or differently size elements of concern within site
- < Screen elements from key viewpoints
- < Adopt alternate technologies or materials

**P** Policy also includes performance criteria and limitations for techniques

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## Other Mitigation Options

### Maintenance or Decommissioning

**P** Upkeep can prevent a facility from becoming an "eyesore"

- < Facility and site

**P** Decommissioning reduces duration of a visual impact

- < by removing object from landscape after its useful life is completed



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## Offsets as Mitigation

### After Other Strategies

**P** When significant visual impacts remain after application of other techniques

**P** Decline in landscape quality associated with a proposed project may be "offset" by correction of some existing aesthetic problem

- < Example: removal of abandoned gravel hoppers as "offset" for new harbor uses

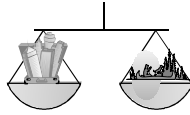


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## Practitioners' Closing Tips

### Go "Back to Basics"

- P Remember why we "do SEQR":
  - < to balance environmental with other values
- P Prepare documents to support agency decisions



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## New York State Department of Environmental Conservation



Division of  
Environmental  
Permits



625 Broadway, Albany, NY 12233-1750  
(518) 402-9167  
<http://www.dec.state.ny.us>

Suffolk County Planning Federation  
Hauppauge, NY October 30, 2002

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# THE DEC POLICY SYSTEM



New York State  
Department of Environmental Conservation

## PROGRAM POLICY

Department ID:  
DEP-00-2

Program ID:  
n/a

**Title: Assessing and Mitigating Visual Impacts**

**Issuing Authority: Article 8, 49**

Name: Jeffrey Sama

Title: Director

Signature: /s/ \_\_\_\_\_ Date: 7/31/00 \_\_\_\_\_

Issuance Date:

**Originating Unit: Division of Environmental Permits**

Office/Division: Environmental Permits

Unit:

Phone: (518) 402-9168

Latest Review Date (Office Use):

**Abstract:** Facilities regulated by the Department of Environmental Conservation located in visual proximity to sensitive land uses can produce significant visual impacts. This policy and guidance defines what visual and aesthetic impacts are, describes when a visual assessment is necessary and how to review a visual impact assessment, differentiates State and local concerns, and defines avoidance, mitigation and offset measures that eliminate, reduce, or compensate for negative visual effects. A glossary of terms is provided for reference.

## I. Purpose

This memorandum provides direction to Department staff for evaluating visual and aesthetic impacts generated from proposed facilities. This guidance defines State regulatory concerns and separates them from local concerns. There is nothing in this program policy that eliminates or reduces the responsibility of an applicant to local agencies to address local visual or aesthetic concerns. In addition, this program policy does not relieve applicants from requirements of other State agencies, such as Department of State Coastal Zone Program or Department of Public Service. This guidance will also define important technical concepts and provide a mechanism for complying with the balancing provisions of the State Environmental Quality Review Act (SEQR) with respect to environmental aesthetics.

## II. Background

An ever expanding body of research has demonstrated that environmental aesthetic values are shared among the general population. This research finds that such values are not idiosyncratic, random, or arbitrary. For example, millions of people visit Niagara Falls for our shared appreciation of its beauty.

Many places have been recognized for their beauty and designated through Federal or State democratic political processes, reinforcing the notion that environmental aesthetic values are shared. Recognition of aesthetic resources also occurs at local levels through zoning, planning or other public means. That these special places are formally recognized is a matter of public record. This guidance contains a

generic listing of all aesthetic resources of statewide significance and serves as the template from which aesthetic issues of State concern can be distinguished from local issues. Generally, it is staff's responsibility to identify and mitigate impacts to Federal and State designated aesthetic resources. With respect to local resources, Department staff should defer to local decision makers, who are likely to be more familiar with and best suited to address them.

### **III. Policy**

In the review of an application for a permit, Department staff must evaluate the potential for adverse visual and aesthetic impacts on receptors outside of the facility or property. When a facility is potentially within the viewshed of a designated aesthetic resource, the Department will require a visual assessment, and in the case where significant impacts are identified, require the applicant to employ reasonable and necessary measures to either eliminate, mitigate or compensate for adverse aesthetic effects.

### **IV. Responsibility**

The environmental analyst, acting as project manager, for review of a new application must assure that visual and aesthetic impacts are properly evaluated by the applicant. For new permits or significantly modified permits, staff must determine the potential significance of the action pursuant to SEQR.

In the review of an application for a permit, staff must evaluate the potential for adverse aesthetic impacts to sensitive places. Sensitive places of statewide concern are listed in this guidance (see V. Procedure). From the State's perspective there may be a significant impact if one or more of the listed places lies within the viewshed of a proposed project. From a local perspective there may be a significant impact if a local resource lies within the project's viewshed. This simple concept may help staff and decision makers distinguish local concerns from State concerns, and public concerns from individual expressions of concern.

With respect to aesthetics, an individual citizen's expression of concern is usually based on the belief that a property or particular "neighborhood" lies within the viewshed of a proposed project. This is different from the concerns of the public at large which has a stake in aesthetic resources recognized as having designated value under the public domain.

Significant impacts are identified and confirmed by staff during the review of an application. SEQR obligates the Department to mitigate such impacts to the maximum extent practicable [6NYCRR Part 617.11(d)(5)]. Local involved agencies must do the same with respect to local resources and likewise comply with Article 8 of the ECL and 6NYCCR Part 617. Impacts to aesthetic resources of statewide concern may require more substantial mitigation strategies to achieve project approval. Mitigation costs and practicality of the mitigative measures must be weighed in the balancing required by the State Environmental Quality Review Act.

Local resources are frequently designated through local zoning and planning processes. Accordingly, local jurisdictions may require additional and somewhat different information than the Department. The legislature has recently recognized and addressed this jurisdictional difference. In 1999, the Legislature, revised Article X of the Public Service Law to eliminate a DEC requirement to testify on behalf of local

jurisdictions concerning the impacts of power plant siting. In doing so, they explicitly eliminated the requirement that DEC staff testify with regard to local jurisdictional needs.

## **V. Procedure**

Staff must assure that the full scope of visual and aesthetic concerns are addressed. This includes impacts from all project components and their operation on all inventoried resources. In addition, an equitable level of expectations between the potential significance of the impact, the degree of sophistication of the analysis required of applicant and appropriate level of mitigation strategies must be established. The goal of visual assessment is to reveal impacts and effective mitigation strategies. Small scale, low budget projects should not be burdened with the costs of sophisticated visual analyses. In these instances, it is generally more effective to reserve applicant investments for mitigation rather than complex visual assessments. Simple line-of-sight profiles may suffice for revealing impacts and potential mitigation strategies (see appendix A for an illustration of their use).

Staff must take certain basic steps to assure that visual concerns have been fully addressed in each application. Those steps are:

- A. Verify the applicant's inventory of aesthetic resources.
- B. Verify the applicant's visual assessment, using either graphic viewshed and line-of-sight profile analysis as illustrated in Appendix A, or more sophisticated visual simulations and digital viewshed analysis, as needed.
- C. Determine or verify the applicant's assessment of the potential significance of the impact.
- D. Confirm that applicant's mitigation strategies are reasonable and are likely to be effective, or assure mitigation by requiring the applicant to submit a design that includes the required mitigation, or, impose permit conditions consistent with those mitigation requirements.

A discussion of each follows:

### **A. Inventory of Aesthetic Resources.**

It is important to note that all significant scenic and aesthetic resources may not have yet been designated in New York State. However, for the purposes of this policy all aesthetic resources of statewide significance may be derived from one or more of the following categories:

- 1) A property on or eligible for inclusion in the National or State Register of Historic Places [16 U.S.C. § 470a et seq., Parks, Recreation and Historic Preservation Law Section 14.07]; e.g. Trinity Church in Manhattan, Schuyler Mansion in Albany;
- 2) State Parks [Parks, Recreation and Historic Preservation Law Section 3.09]; e.g. Grafton Lakes State Park, Rensselaer County;
- 3) Urban Cultural Parks [Parks, Recreation and Historic Preservation Law Section 35.15];

- 4) The State Forest Preserve [NYS Constitution Article XIV]; Adirondack and Catskill Parks;
- 5) National Wildlife Refuges [16 U.S.C. 668dd], State Game Refuges and State Wildlife Management Areas [ECL 11-2105]; e.g. Montezuma National Wildlife refuge; Perch River Wildlife Management Area, Jefferson County;
- 6) National Natural Landmarks [36 CFR Part 62]; e.g. Iona Island Marsh, Hudson River, Rockland County;
- 7) The National Park System, Recreation Areas, Seashores, Forests [16 U.S.C. 1c]; e.g. Gateway National Recreation Area, Staten Island; Finger Lakes National Forest, Schuyler County;
- 8) Rivers designated as National or State Wild, Scenic or Recreational [16 U.S.C. Chapter 28, ECL 15-2701 et seq.]; e.g. Cedar River (Wild), Ampersand Brook (Scenic); West Branch of the Ausable River (Recreational);
- 9) A site, area, lake, reservoir or highway designated or eligible for designation as scenic [ECL Article 49 or DOT equivalent and APA. Designated State Highway Roadside; e.g. Storm King Highway (Article 49 Scenic Road), Rockland county;
- 10) Scenic Areas of Statewide Significance [of Article 42 of Executive Law]<sup>1</sup>; e.g. Catskill-Olana SASS;
- 11) A State or federally designated trail, or one proposed for designation [16 U.S.C. Chapter 27 or equivalent]; e.g. Appalachian Trail;
- 12) Adirondack Park Scenic Vistas; [Adirondack Park Land Use and Development Map]
- 13) State Nature and Historic Preserve Areas; [Section 4 of Article XIV of the State Constitution];
- 14) Palisades Park; [Palisades Interstate Park Commission]; e.g. Harriman State Park;
- 15) Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space category; e.g. Star Hill, Oneida County.

Note: The Hudson River has recently been designated an “American Heritage River” by a Presidential Order under [PL 91-190]. The details and criteria of the program as they may relate to this policy are currently under review.

#### B. Visual Assessments.

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<sup>1</sup> State Coastal Policies number 24 and 25 derived in part from Section 912 of Article 42 of the Executive Law define the criteria that, when properly employed, assure project consistency with coastal zone management objectives. Such policies are consistent with the review mechanisms contained in this DEC policy. Also for reference is the July 1993 DOS SASS publication for Columbia-Greene, Catskill-Olana, Estates District, Ulster North, Esopus-Lloyd, and the Hudson Highlands.



In all visual assessments, significant resources must be identified along with any potential adverse effects on those resources from the proposed project. If, in staff's judgement, a place designated in any of the above categories may lie in the viewshed of the proposed project then a visual assessment should be required to confirm or refute this potential. At a minimum a line-of-sight-profile, or, depending upon the scope and potential significance of the activity, a digital viewshed may be used to determine if a significant property is within the potential viewshed of the proposed project (see the Appendix A attached for guidance on how to construct and use a line-of-sight profile). Staff must then review the applicant's visual assessment for adequacy, accuracy and thoroughness. The control points (see glossary for definition) must be established by staff and should include a worst case scenario. Worst case here means establishing the control points that reveal any project visibility at an aesthetically significant place. Most of the time, though not always, high points reveal worst case. For example, the tallest facility component (e.g. combustion exhaust stack), may be the control point at the project end of the profile, while a high point of ground upon which the observer stands within a State Park may be the control point at the resource end of the profile.

With respect to determining the radius of the impact area to be analyzed, there has been a general guideline for large actions that it is usually "safe" to use 5 miles. The 5 mile distance probably owes its origins to the U.S. Forest Service "distance zones" set forth in their landscape management journal written in 1973<sup>2</sup> (5 miles is still largely considered "background," i.e. distances at which most activities are not a point of interest to the casual observer). However, for very large activities, such as power plants (particularly those that generate wet cooling tower plumes), and large landscape alterations, greater distances have been shown to be important in some landscape settings, and must be considered. In those instances, applicants must document to the satisfaction of staff that impacts beyond five miles to listed resources have been considered. They must also provide a clear demonstration that impact to any resource of statewide concern is insignificant. Such demonstrations may be convincing if resource inventories beyond 5 miles are coupled with line-of-sight profiles (see Appendix A for a complete discussion of these graphic tools) or other accepted visual criteria, such as computer simulations, analogous comparative studies or worst case presentations.

#### C. Significance.

Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Significant aesthetic impacts are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place. Proposed large facilities by themselves should not be a trigger for a declaration of significance. Instead, a project by virtue of its siting in visual proximity to an inventoried resource may lead staff to conclude that there may be a significant impact. For example, a cooling tower plume may drift between viewers standing on an overlook at a State Park thereby blocking the view of the panorama. Staff must verify the potential significance of the impact using the qualities of the resource and the juxtaposition (using viewshed and or line-of-sight profiles) of the proposal as the guide for the determination.

#### D. Mitigation.

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<sup>2</sup> U.S. Forest Service, Agricultural Handbook Number 434, Feb. 1973

Mitigation may reduce or eliminate the visibility of the project or alter the project's effect on the scenic or aesthetic resource in some way. It is usually easier to deal with the visibility of the project than its composition to achieve mitigation. Altering the composition of a project lies within the realm of professional designers. When given the opportunity, however, staff should encourage applicants to design aesthetically compatible projects that incorporate environmentally friendly design principles and components, as may be employed from the mitigation menu below.

Mitigation strategies can be categorized into three general groups as outlined below.

- 1) Professional Design and Siting.
  - a) Screening
  - b) Relocation
  - c) Camouflage/Disguise
  - d) Low Profile
  - e) Downsizing
  - f) Alternate Technologies
  - g) Non-specular materials
  - f) Lighting
- 2) Maintenance
  - a) Decommissioning
- 3) Offsets

A discussion of each follows:

1. Professional Design and Siting. A properly sited and designed project is the best way to mitigate potential impacts. Under optimum circumstances a project can be sited in a location which precludes the possibility of having an aesthetic resource within its viewshed. Also, through sensitive design treatment, elements of particular concern may be sited or dimensioned in a way that reduces or eliminates impacts on significant resources. Sometimes circumstances prevent the realization of optimal siting and sometimes engineering, economic or other constraints preclude optimum dimensioning or other appropriate design treatments. Under those circumstances, other mitigation strategies should be considered.

Staff should assure effective mitigation is thoroughly explored by requiring project sponsors to consider the following tools to mitigate impacts:

a. Screening. Screens are objects that conceal other objects from view. They may be constructed of soil, rocks, bricks, or almost anything opaque. Vegetation can, despite its visual porosity, function as a screen when a sufficient mass is employed. Screens may be natural, e.g. vegetation, or artificial, e.g. fences and walls. Screens may appear natural e.g. wood, stone, or may appear artificial, e.g. plastic, metal. In natural settings it is generally better to employ natural materials, while in urban places designers may employ a broader range of materials.

Screens constructed from soil are called berms. Berms may appear natural e.g. blend with nearby topography, or appear artificial e.g. geometrical or symmetrical shape. Each

may be employed depending upon the overall design intent. Berms may be vegetated or not vegetated depending upon their particular function, e.g. spill containment and/or screening.

Properly sized and placed screens may completely conceal an object, while improperly sized and placed screens may fail to conceal. Screens may block desirable views when improperly placed (see Appendix A to see how screen placement is important).

Screens are not necessarily buffers and buffers are not necessarily screens. A buffer may attenuate noise, soften a landscape or provide other functions that may or may not include screening.

Screens possess line, form, texture, planes and color, and therefore, have their own aesthetic qualities. At times, they may be more impacting than the object to be concealed. Screens may draw attention to the object to be concealed. Screens may physically connect two similar or dissimilar areas.

b. Relocation. A facility component may be relocated to another place within the site to take advantage of the mitigating effects of topography and vegetation.

c. Camouflage/Disguise. Colors and patterns of color may conceal an object or its identity. Disguise may take many forms, and is limited only by the imagination of the project designers. As an example, communication towers can be disguised as trees, flagpoles, barn silos, church steeples, or any other “in-character” structure depending upon circumstances.

d. Low Profile. Reducing the height of an object reduces its viewshed area.

e. Downsizing. Reducing the number, area or density of objects may reduce impacts.

f. Alternate Technologies. Substituting one technology for another may reduce impacts (e.g. dry cooling tower technology versus wet cooling tower technology).

g. Non-Specular Materials. Using building materials that do not shine may reduce visual impacts.

h. Lighting. With respect to regional issues, such as a tall combustion exhaust stack or radio tower, the Federal Aviation Administration (FAA) requires certain lighting for public transportation safety. These impacts may be considered unavoidable unless lower profiles can be achieved. Applicants should also document that they have consulted with and met all applicable lighting standards under local jurisdiction. Consideration should be given to off-site light migration, glare and “sky glow” light pollution. Lighting requirements, through best engineering practices, should not exceed the functional requirements of the project.

2. Maintenance. How a landscape and structures in the landscape are maintained has aesthetic implications. “Eyesores” result from neglect. This should be part of any mitigation strategy.

a. Decommissioning. Removing an object from the landscape after its useful life is over, reduces the duration of a visual impact (see page 9 for further discussion).

3. Offsets. Correction of an existing aesthetic problem identified within the viewshed of a proposed project may qualify as an offset or compensation for project impacts. A decline in the landscape quality associated with a proposed project can, at least partially, be "offset" by the correction. In some circumstances a net improvement may be realized (see page 9 for further discussion).

An applicant may assert that all economic and effective mitigation strategies have been incorporated into the proposed design and, when properly designed, such self-imposed mitigation should effectively mitigate any negative effects on a listed resource. However, if staff concludes that significant impacts remain then staff must still ensure that impacts are minimized. In this regard, staff should first investigate visibility mitigation strategies. Manipulating design elements to achieve adequate mitigation usually lies within the purview of professional designers.

Staff should not try to judge the quality of a design nor its effect on the aesthetics of the listed resource unless they are qualified to do so. Such qualifications normally include academic or other accepted credentials in architecture or landscape architecture. Nevertheless, it is the burden of the applicant to provide clear and convincing evidence that the proposed design does not diminish the public enjoyment and appreciation of the qualities of the listed aesthetic resource. Staff can and should review the strength or merit of such proof. An applicant's mere assertion that the design is in harmony with or does not diminish the values of the listed resource is insufficient for the purposes of reaching findings. Instead, an applicant must demonstrate through evidence provided by others e.g. recognized architectural review boards, comparative studies that are clearly analogous, or other similar techniques, that the public's enjoyment and appreciation of the qualities of the aesthetic resource are not compromised.

Staff must be assured that consistent with social, economic and other essential considerations, the action is one that avoids or minimizes adverse impacts to the maximum extent practicable. This can be accomplished by asking and responding affirmatively to the following questions.

- 1) Was the full mitigation menu considered?
- 2) Will those mitigation strategies selected be effective?
- 3) Were the costs of mitigation for impacts to other media considered and were those mitigation investments prioritized accordingly?
- 4) Are the estimated costs of all mitigation insignificant (for example, are the costs of visual mitigation taken together with all other mitigation less than 10% of the total project cost?)
- 5) Were the mitigation strategies employed consistent with previous similar applications? If not, was the reasoning for any changes reasonable and justified?
- 6) Was the mitigation cost effective? For example, if fully mature vegetation with an immediate screening effect costs 10 times the amount that less mature vegetation would cost, is it appropriate to require the less costly option if its full screening effect can be realized in just, say, 3 years? (See Appendix A for details concerning this subject).
- 7) Were offsets and decommissioning considered?

It is important to bring the project sponsor into the discussion of mitigation strategies. If more than one mitigation strategy meets all environmental protection needs, the applicant's needs and preferences should be considered.

It is preferred that all mitigation options selected be specified in the applicant's plans for Department review. The plans should sufficiently depict readily understandable and enforceable details. Adherence to such plans should then become a permit condition. During and after facility construction, staff should visit the site and ensure that all mitigation strategies detailed in the plans and specifications have been adequately incorporated into the facility design.

If all mitigation options available from the menu are considered, applied where appropriate, and those applied are cost effective, then one can assert that impacts have been minimized to the maximum extent practicable. However, the residual impact after all such strategies have been employed may still be significant. Offsets should then be considered to help achieve the balancing required of SEQR. Finally, decommissioning options may be considered that reduce the duration of impacts for projects with severe residual impacts. A discussion of each follows:

#### 1. Offsets.

Offsets should be employed in sensitive locations where significant impacts from the proposal are unavoidable, or mitigation of other types would be uneconomic and mitigation to be used is only partially effective. Offsets should be employed when significant improvement can be expected at reasonable cost. An example of an offset might be the removal of an existing abandoned structure that is in disrepair (i.e. an "eyesore") to offset impacts from a proposal within visual proximity to the same sensitive resource.

#### 2. Decommissioning.

Decommissioning may take many forms, and other disciplines in Department program areas may have an interest in decommissioning. However, from the perspective of aesthetics, three are of most significance: 1) the total removal from the site of all facility components and restoration to an acceptable condition, usually with attendant revegetation; 2) partial removal of facility components, such as elimination of visually impacting structures; and 3) conditions designed to maintain an abandoned facility and site in an acceptable condition that precludes "eyesores" or site and structural deterioration. Applicants should provide such plans when deemed necessary.

### Glossary

**Aesthetic impact:** Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Mere visibility, even startling visibility of a project proposal, should not be a threshold for decision making. Instead a project, by virtue of its visibility, must clearly interfere with or reduce the public's enjoyment and/or appreciation of the appearance of an inventoried resource (e.g. cooling tower plume blocks a view from a State Park overlook).

**Aesthetically significant place:** A formally designated place visited by recreationists and others for the express purpose of enjoying its beauty. For example, millions of people visit Niagara Falls on an annual basis. They come from around the country and even from around the world. By these measurements,

one can make the case that Niagara Falls (a designated State Park) is an aesthetic resource of national significance. Similarly, a resource that is visited by large numbers who come from across the state probably has statewide significance. A place visited primarily by people whose place of origin is local generally is generally of local significance. Unvisited places either have no significance or are "no trespass" places.

**Aesthetic Quality:** There is a difference between the quality of a resource and its significance level. The quality of the resource has to do with its component parts and their arrangement. The arrangement of the component parts is referred to as composition. The quality of the resource and the significance level are generally, though not always, correlated.

**Atmospheric perspective:** Even on the clearest of days, the sky is not entirely transparent because of the presence of atmospheric particulate matter. The light scattering effect of these particles causes atmospheric or aerial perspective, the second important form of perspective. In this form of perspective there is a reduction in the intensity of colors and the contrast between light and dark as the distance of objects from the observer increases. Contrast depends upon the position of the sun and the reflectance of the object, among other items. The net effect is that objects appear "washed out" over great distances.

**Control Points:** The two end points of a line-of-sight. One end is always the elevation of an observer's eyes at a place of interest (e.g. a high point in a State Park) and the other end is always an elevation of a project component of interest (e.g. top of a stack of a combustion facility or the finished grade of a landfill).

**Line-of-sight profile:** A profile is a graphic depiction of the depressions and elevations one would encounter walking along a straight path between two selected locations. A straight line depicting the path of light received by the eye of an imaginary viewer standing on the path and looking towards a predetermined spot along that path constitutes a line-of-sight. The locations along the path where the viewer stands and looks are the control points of the line-of-sight profile.

**Scientific Perspective:** Scientific, linear, or size perspective is the reduction in the apparent size of objects as the distance from the observer increases. An object appears smaller and smaller as an observer moves further and further from it. At some distance, depending upon the size and degree of contrast between the object and its surroundings, the object may not be a point of interest for most people. At this hypothetical distance it can be argued that the object has little impact on the composition of the landscape of which it is a tiny part. Eventually, at even greater distances, the human eye is incapable of seeing the object at all.

**Viewshed:** A map that shows the geographic area from which a proposed action may be seen is a viewshed.

**Visual Assessments:** Analytical techniques that employ viewsheds, and/or line-of-sight profiles, and descriptions of aesthetic resources, to determine the impact of development upon aesthetic resources; and potential mitigation strategies to avoid, eliminate or reduce impacts on those resources.

**Visual impact:** Visual impact occurs when the mitigating effects of perspective do not reduce the visibility of an object to insignificant levels. Beauty plays no role in this concept. A visual impact may also be considered in the context of contrast. For instance, all other things being equal, a blue object

seen against an orange background has greater visual impact than a blue object seen against the same colored blue background. Again, beauty plays no role in this concept.

## **APPENDIX A**

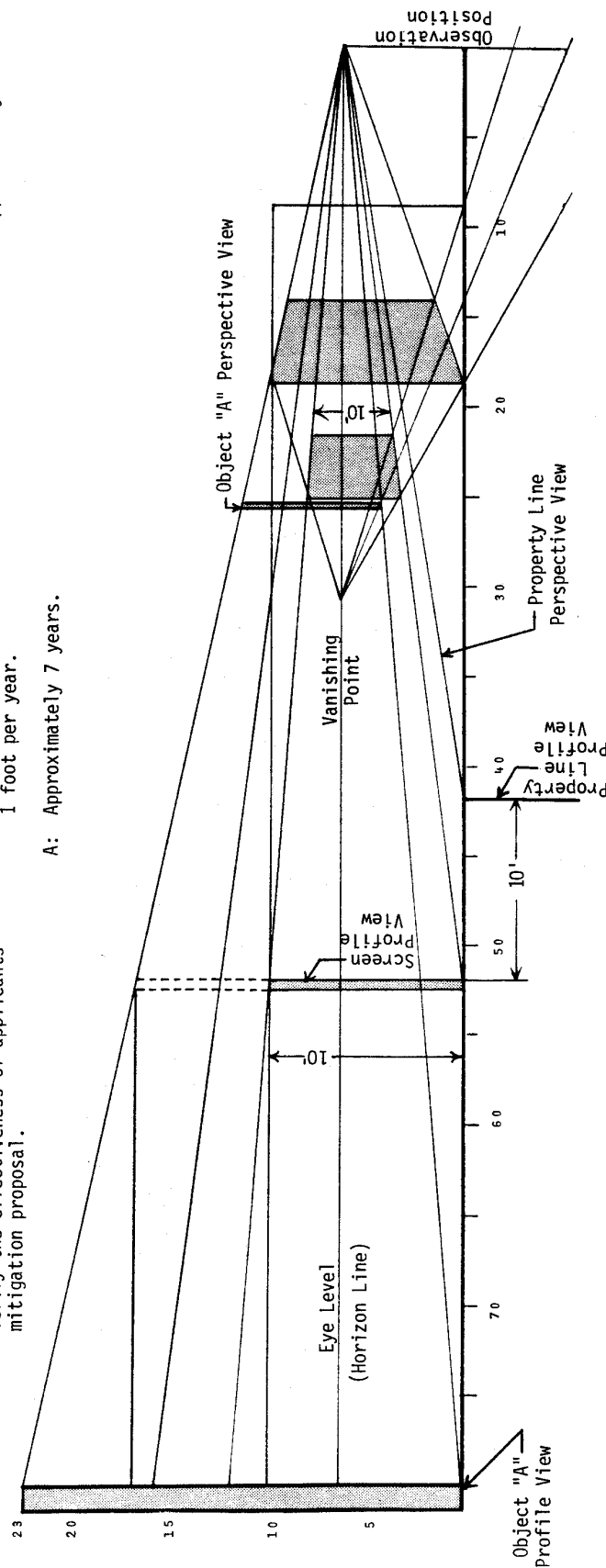


# SCREENS

## THE RELATIONSHIP BETWEEN SCIENTIFIC PERSPECTIVE AND A LINE OF SIGHT PROFILE.

Scientific or linear perspective is a geometric procedure that projects space onto a plane. This technique provides the analyst with a simplified way to verify the effectiveness of applicants mitigation proposal.

- Q: At what height should a screen be constructed to completely conceal a 23 foot object from an observer standing 80 feet from the object?  
Constraint: Screen must be located 10 feet inside property line.
- A: About 17 feet.
- Q: What is the maximum height of an object to be concealed behind a 10 foot screen that is located 80 feet from an observer?  
Constraint: The observer is standing about 18½ feet behind the screen.
- A: About 23 feet.
- Q: In approximately how many years would a vegetative screen 6 feet in height planted on a berm 4 feet in height completely conceal a 23 foot object?  
Constraints: Berm must be located 10 feet inside property line; object is 80 feet from observer; expected vegetation growth rate of approximately 1 foot per year.
- A: Approximately 7 years.

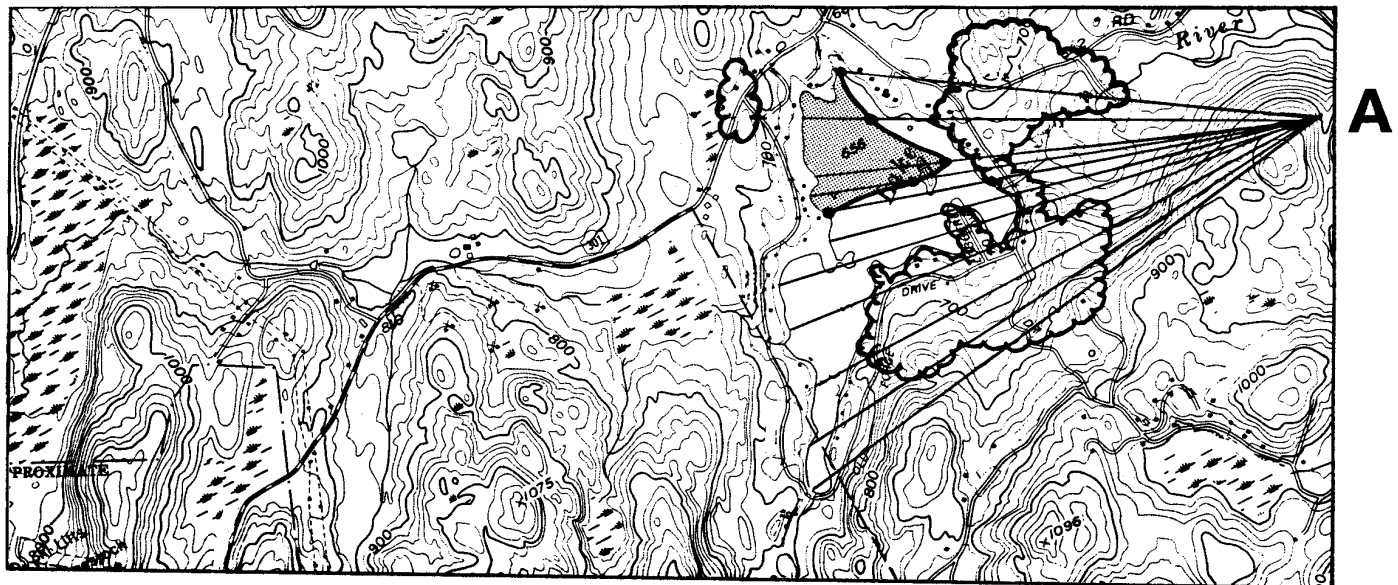


# VIEWSHEDS

For illustrative purposes only, a "partial" viewshed has been constructed below. A partial viewshed is distinguished from a full viewshed in that it only shows a selected area from which an object may be seen. A full viewshed shows all such areas.

The shaded area in the northwest corner of the lake is the only area within the lake that a hypothetical object 100 feet in height and situated at A (where the profile radii converge) may be seen.

The defined viewing area has been constructed by connecting each point along each profile where a viewer just begins to see the hypothetical object. To add realism to the viewshed, 40' vegetation has been factored into the lines of sight. The vegetation alters the viewing angle and hence the initial viewpoint indicated by the large black dots at the intersection of the shaded area with each profile radii.



## LEGEND



VIEWSHED  
(Area within lake from which a hypothetical  
100 foot object located at "A" may be seen)



SCALE 1" = 2,000'

# PROFILES

To construct a profile, first position the graph paper parallel and contiguous to the horizontal alignment of the desired profile (indicated by line A-B). Proceed by extending vertical lines (indicated by dashed lines) to the correct height according to any selected convenient vertical scale (in this case 1" = 100'). This must be done from each spot where the horizontal alignment crosses a contour line. It is the elevation of the intersected contour that determines the height of each vertical line. Then, simply connect the top of each vertical line to form the profile (indicated by line C-D). The profile C-D depicts the depressions and elevations one would encounter walking a straight path from Point A to B on the plan map. To add realism add vegetation at the proper locations at the proper height (in this case 40').

## Sample Questions and Answers

According to the profile:

Q. Can an observer at location "Z" see the east shore of the lake?

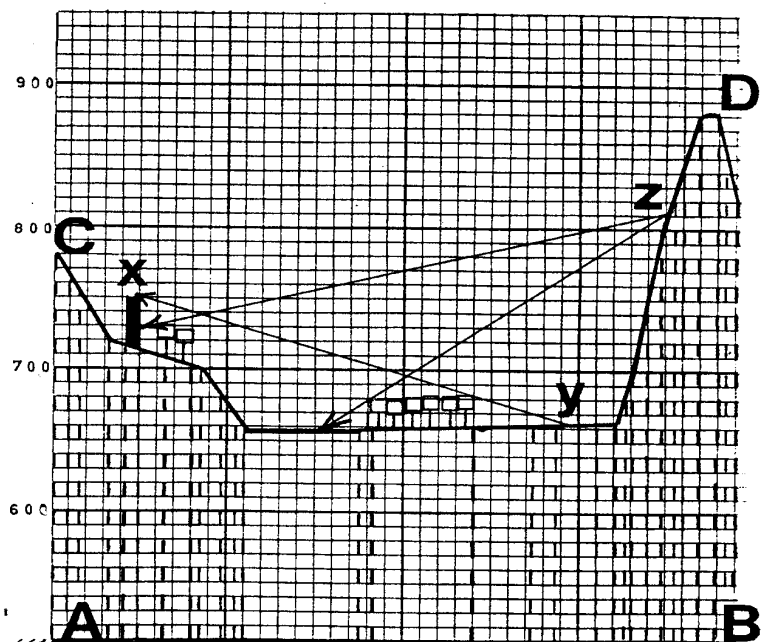
A. No

Q. At what point will the observer no longer be able to see object "X"?

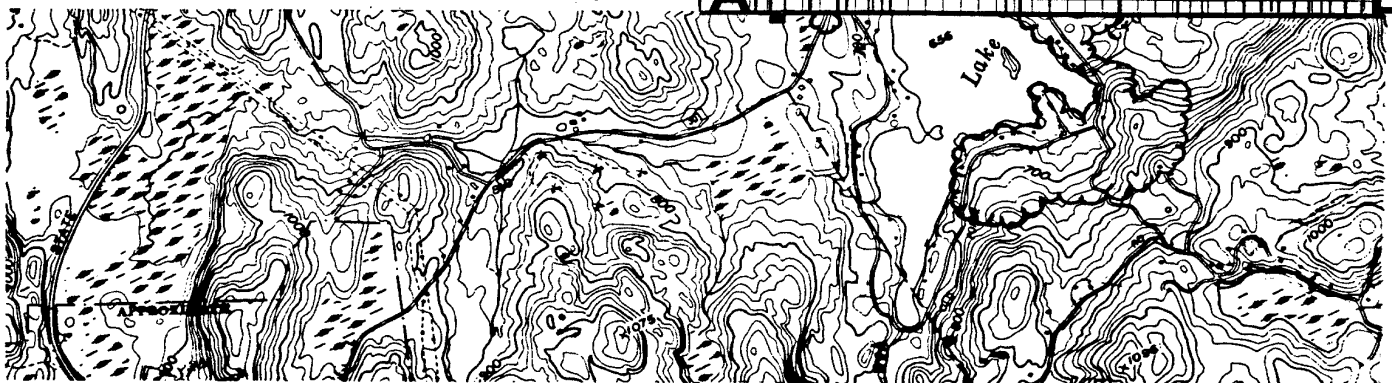
A. At point "Y".

Q. What is the visible portion of object "X" to an observer at location "Z"?

A. About 20 feet.



VERTICAL SCALE 1" = 100'  
HORIZONTAL SCALE 1" = 2,000'



# Assessing and Mitigating Noise Impacts



New York State  
Department of Environmental Conservation

<b>PROGRAM POLICY</b>	<b>Department ID:</b> DEP-00-1	<b>Program ID:</b> n/a
<b>Issuing Authority: Environmental Conservation Law Articles 3, 8, 23, 27</b>	<b>Originating Unit: Division of Environmental Permits</b>	
Name: Jeffrey Sama	Office/Division: Environmental Permits	
Title: Director	Unit:	
Signature: <u>  /S/  </u> Date: <u>10/6/00</u>	Phone: (518) 457-2224	
Issuance Date: October 6, 2000 Revised: February 2, 2001	Latest Review Date (Office Use):	

**Abstract:** Facility operations regulated by the Department of Environmental Conservation located in close proximity to other land uses can produce sound that creates significant noise impacts for proximal sound receptors. This policy and guidance presents noise impact assessment methods, examines the circumstances under which sound creates significant noise impacts, and identifies avoidance and mitigative measures to reduce or eliminate noise impacts.

**Related References:** See references pages 27 and 28.

## I. PURPOSE<sup>1</sup>

This policy is intended to provide direction to the staff of the Department of Environmental Conservation for the evaluation of sound levels and characteristics (such as pitch and duration) generated from proposed or existing facilities. This guidance also serves to identify when noise levels may cause a significant environmental impact and gives methods for noise impact assessment, avoidance, and reduction measures. These methods can serve as a reference to applicants preparing environmental assessments in support of an application for a permit. Additionally, this guidance explains the Department's regulatory authority for undertaking noise evaluations and for imposing conditions for noise mitigation measures in the agency's approval

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<sup>1</sup> A Program Policy Memorandum is designed to provide guidance and clarify program issues for Division staff to ensure compliance with statutory and regulatory requirements. It provides assistance to New York State Department of Environmental Conservation (DEC) staff and the regulated community in interpreting and applying regulations and statutes to assure that program uniformity is attained throughout the State. Nothing set forth in a Program Policy Memorandum prevents DEC staff from varying from that guidance as specific circumstances may dictate, provided the staff's actions comply with applicable statutory and regulatory requirements. As this guidance document is not a fixed rule, it does not create any enforceable right by any party using the Program Policy Memorandum.

of permits for various types of facilities pursuant to regulatory program regulations and the State Environmental Quality Review Act (SEQR).

## **II. BACKGROUND**

Noise is defined as any loud, discordant or disagreeable sound or sounds. More commonly, in an environmental context, noise is defined simply as unwanted sound. Certain activities inherently produce sound levels or sound characteristics that have the potential to create noise. The sound generated by proposed or existing facilities may become noise due to land use surrounding the facility. When lands adjoining an existing or proposed facility contain residential, commercial, institutional or recreational uses that are proximal to the facility, noise is likely to be a matter of concern to residents or users of adjacent lands.

### **A. Sources of Noise Generation**

The three major categories of noise sources associated with facilities are (1) fixed equipment or process operations; (2) mobile equipment or process operations; and (3) transport movements of products, raw material or waste. The fixed plant may include a very wide range of equipment including: generators; pumps; compressors; crushers of plastics, stone or metal; grinders; screens; conveyers; storage bins; or electrical equipment. Mobile operations may include: drilling; haulage; pug mills; mobile treatment units; and service operations. Transport movements may include truck traffic within the operation, loading and unloading trucks and movement in and out of the facility. Any or all of these activities may be in operation at any one time. Singular or multiple effects of sound generation from these operations may constitute a potential source of noise.

### **B. Potential for Adverse Impacts**

Numerous environmental factors determine the level or perceptibility of sound at a given point of reception. These factors include: distance from the source of sound to receptor; surrounding terrain; ambient sound level; time of day; wind direction; temperature gradient; and relative humidity. The characteristics of a sound are also

important determining factors for considering it as noise. The amplitude (loudness), frequency (pitch), impulse patterns and duration of sound all affect the potential for a sound to be a noise. The combination of sound characteristics, environmental factors and the physical and mental sensitivity of a receptor to a sound determine whether or not a sound will be perceived as a noise. This guidance uses these factors in assessing the presence of noise and the significance of its impacts. It relies upon qualitative and quantitative sound evaluation techniques and sound pressure level impact modeling presented in accepted references on the subject.

#### C. Mitigation

Mitigation refers to actions that will be taken to reduce the effects of noise or the noise levels on a receptor. Adverse noise effects generated by a facility can be avoided or reduced at the point of generation thereby diminishing the effects of the noise at the point of reception. This guidance identifies various mitigation techniques and their proper application either at the source of noise generation or on a facility's property. Alternative construction or operational methods, equipment maintenance, selection of alternative equipment, physical barriers, siting of activities, set backs, and established hours of construction or operation, are among the techniques that can successfully avoid or reduce adverse noise effects.

#### D. Decision Making

When an assessment of the potential for adverse noise impacts indicates the need for noise mitigation, it is preferred that specifications for such measures be incorporated in a noise analysis and in the applicant's work or operational plan necessary for a complete application. Presenting a plan that incorporates effective noise mitigation provisions facilitates the Department's technical and environmental review and minimizes or negates the imposition of permit conditions by the Department. Adherence to these plans becomes a condition of a permit.

Noise avoidance and mitigation measures may also be imposed directly as conditions of permit issuance. This guidance will review the statutory authority under which the Department can require the mitigation of noise effects.

### **III. POLICY**

In the review of an application for a permit, the Department of Environmental Conservation is to evaluate the potential for adverse impacts of sound generated and emanating to receptors outside of the facility or property. When a sound level evaluation indicates that receptors may experience sound levels or characteristics that produce significant noise impacts or impairment of property use, the Department is to require the permittee or applicant to employ reasonable and necessary measures to either eliminate or mitigate adverse noise effects. Options to be used to fulfill this guidance should be implemented within the existing regulatory and environmental review framework of the agency.

Regulatory authority for assessing and controlling noise effects are contained in both SEQR and specific Department program regulations. Specific regulatory references are as follows:

Section 3-0301(1)(i) of the Environmental Conservation Law (ECL) states that the commissioner shall have the power to: “i. Provide for prevention and abatement of all water, land and air pollution including but not limited to that related to particulates, gases, dust, vapors, noise, radiation, odor, nutrients and heated liquids.”

To comply with Article 8 of the ECL and 6 NYCRR Part 617, State Environmental Quality Review Act, consideration of all relevant environmental issues must be undertaken in making a determination of environmental significance. Noise impact potential is one of many potential issues for consideration in a SEQR review.

Environmental Conservation Law (ECL) Article 23, Title 27, Mined Land Reclamation Law (MLRL), requires applicants for permits to prepare and submit a mined land use plan to the Department for approval. The plan must describe, “the applicant’s mining method and measures

to be taken to minimize adverse environmental impacts resulting from the mining operation.” The provisions to be incorporated in a Mined Land Use Plan, as specified in 6 NYCRR Section 422.2, include the control of noise as a component of the plan.

The solid waste regulations at 6 NYCRR Subdivision 360-1.14(p), establish A-weighted decibel levels that are not to be exceeded at the property line of a facility.

The Division of Air Resources has regulations in 6 NYCRR Parts 450 through 454 that regulate the allowable sound level limits on certain motor vehicles. The statutory authority for these regulations is found in the New York State Vehicle and Traffic Law, Article 10, Section 386.

This guidance does not supercede any local noise ordinances or regulations.

## **IV. RESPONSIBILITY**

The environmental analyst, acting as project manager for the review of applications for permits or permit modifications and working in concert with the program specialist, is responsible for ensuring that sound generation and noise emanating from proposed or existing facilities are properly evaluated. For new permits or significantly modified permits, there should be a determination as to the potential for noise impacts, and establishment of the requirements for noise impact assessment to be included in the application for permit. Where the Department is lead agency, the analyst is responsible for making a determination of significance pursuant to SEQRA with respect to potential noise impacts and include documentation for such determination.

Where impacts are to be avoided or reduced through mitigation measures, the analyst, or where there are program requirements to address noise, the program specialist, should determine the effectiveness and feasibility of those measures and ensure that the permit conditions contain specific details for such measures. It should also be determined if additional measures to control noise are to be imposed as a condition of permitting. Appropriate permit language for the permit conditions should be developed by the program specialist and the analyst. The results of noise impact evaluations and the effectiveness of mitigation measures



shall be incorporated into SEQR documents and, where necessary, permit conditions shall be placed in final permits to ensure effective noise control.

When it is determined that potential noise effects, as well as other issues, warrant evaluation of impacts and mitigation measures in a Draft Environmental Impact Statement (EIS) prepared pursuant to SEQR, the environmental analyst with the Division of Environmental Permits assumes responsibility for determining the level of evaluation needed to assess sound level generation, noise effects, and mitigation needs and feasibility.

For existing facilities, the program specialist will determine the need for additional mitigation measures to control noise effects either in response to complaints or other changes in circumstances such as new noise from existing facilities or a change in land-use proximal to the facility.

The applicant or their agent, in preparing an application for a permit and supporting documentation, is responsible for assessing the potential noise impacts on area receptors. When potential adverse noise impacts are identified, the applicant should incorporate noise avoidance and reduction measures in the construction or operating plans. The applicant's submittal should also assess the effectiveness of proposed mitigation measures in eliminating adverse noise reception. Where noise effects are determined to be a reason in support of a SEQR positive declaration, the applicant shall assess noise impacts, avoidance, and mitigation measures in a Draft EIS using methodologies acceptable to this Department.

## **V. PROCEDURE**

The intent of this section is to: introduce terms related to noise analyses; describe some of the various methods used to determine the impacts of sound pressure levels on receptors; identify some of the various attenuators of noise; and list some of the mitigative techniques that can be used to reduce the effects of noise on a receptor. At the end of the section three levels of analysis are described. The first level determines the potential for adverse noise impacts based on noise characteristics and sound pressure increases solely on noise attenuation over distance between the source and receptor of the noise. The second level factors other considerations such as topography and noise abatement measures in determining if adverse

noise impacts will occur. The third level evaluates noise abatement alternatives and their effectiveness in avoiding or reducing noise impacts.

The environmental effects of sound and human perceptions of sound can be described in terms of four characteristics:

1. Sound Pressure Level (SPL may also be designated by the symbol  $L_p$ ) or perceived loudness is expressed in decibels (dB) or A-weighted decibel scale dB(A) which is weighted towards those portions of the frequency spectrum, between 20 and 20,000 Hertz, to which the human ear is most sensitive. Both measure sound pressure in the atmosphere.
2. Frequency (perceived as pitch), the rate at which a sound source vibrates or makes the air vibrate.
3. Duration i.e., recurring fluctuation in sound pressure or tone at an interval; sharp or startling noise at recurring interval; the temporal nature (continuous vs. intermittent) of sound.
4. Pure tone which is comprised of a single frequency. Pure tones are relatively rare in nature but, if they do occur, they can be extremely annoying.

Another term, related to the average of the sound energy over time, is the Equivalent Sound Level or  $L_{eq}$ . The  $L_{eq}$  integrates fluctuating sound levels over a period of time to express them as a steady state sound level. As an example, if two sounds are measured and one sound has twice the energy but lasts half as long, the two sounds would be characterized as having the same equivalent sound level. Equivalent Sound Level is considered to be directly related to the effects of sound on people since it expresses the equivalent magnitude of the sound as a function of frequency of occurrence and time. By its derivation  $L_{eq}$  does not express the maximum nor minimum SPLs that may occur in a given time period. These maximum and minimum SPLs should be given in the noise analysis. The time interval over which the  $L_{eq}$  is measured should always be given. It is generally shown as a parenthetical;  $L_{eq(8)}$  would indicate that the sound had been measured for a period of eight hours.

Equivalent Sound Level ( $L_{eq}$ ) correlates well and can be combined with other types of noise analyses such as Composite Noise Rating, Community Noise Equivalent Level and day-night noise levels characterized by  $L_{dn}$  where an  $L_{eq(24)}$  is measured and 10 dBA is added to all noise levels measured between 10 pm and 7 am. These different types of noise analyses

basically combine noise measurements into measures of cumulative noise exposure and may weight noise occurring at different times by adding decibels to the actual decibel level. Some of these analyses require more complex noise analysis than is mentioned in this guidance. They may be used in a noise analyses prepared for projects.

Designations for sound levels may also be shown as  $L_{(10)}$  or  $L_{(90)}$  in a noise analysis. These designations refer to the sound pressure level (SPL) that is exceeded for 10% of the time over which the sound is measured, in the case of  $L_{(10)}$ , and 90% of the time, in the case of  $L_{(90)}$ . For example, an  $L_{(90)}$  of 70 dB(A) means that 70 dB(A) is exceeded for 90% the time for which the measurement was taken.

#### A. Environmental Setting and Effects on Noise Levels

1. Sound Level Reduction Over Distance - It is important to have an understanding of the way noise decreases with distance. The decrease in sound level from any single noise source normally follows the “inverse square law.” That is, SPL changes in inverse proportion to the square of the distance from the sound source. At distances greater than 50 feet from a sound source, every doubling of the distance produces a 6 dB reduction in the sound. Therefore, a sound level of 70 dB at 50 feet would have a sound level of approximately 64 dB at 100 feet. At 200 feet sound from the same source would be perceived at a level of approximately 58 dB.
2. Additive Effects of Multiple Sound Sources - The total sound pressure created by multiple sound sources does not create a mathematical additive effect. Below Table A is given to assist you in calculating combined noise sources. For instance, two proximal noise sources that are 70 dBA each do not have a combined noise level of 140 dBA. In this case the combined noise level is 73 dBA. Since the difference between the two sound levels is 0 dB, Table A tells us to add 3 dB to the sound level to compensate for the additive effects of the sound. To find the cumulative SPL assess the SPLs starting with the two lowest readings and work up to the difference between the two highest readings. For several pieces of equipment, operating at one

time, calculate the difference first between the two lowest SPLs, check Table A and add the appropriate number of decibels to the higher of the two sound levels. Next, take the sound level that was calculated using Table A and subtract the next lowest sound level to be considered for the operation. Consult Table A again for the additive effect and add this to the higher of the two sound levels. Follow this process until all the sound levels are accounted for. As an example, let us say that an area for a new facility is being cleared. The equipment to be used is: two chainsaws, one operating at 57 dBA and one at 60 dBA; a front end loader at 80 dBA; and a truck at 78 dBA. Start with the two lowest sound levels:  $60 \text{ dBA} - 57 \text{ dBA} = 3 \text{ dBA}$  difference. Consulting the chart add 2 dBA to the higher sound level. The cumulative SPL of the two chainsaws is 62 dBA. Next, subtract 62 dBA from 78 dBA.  $78 \text{ dBA} - 62 \text{ dBA} = 16 \text{ dBA}$ . In this case, 0 dBA is added to the higher level so we end up with 78 dBA. Lastly, subtract 78 dBA from the 80 dBA.  $80 \text{ dBA} - 78 \text{ dBA} = 2 \text{ dBA}$  a difference of 2 dBA adds 2 dBA to the higher SPL or 82 dBA. The SPL from these four pieces of equipment operating simultaneously is 82 dBA.

Table A  
Approximate Addition of Sound Levels

Difference Between Two Sound Levels	Add to the Higher of the Two Sound Levels
1 dB or less	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0 dB

(USEPA, Protective Noise Levels, 1978)

3. Temperature and Humidity - Sound energy is absorbed in the air as a function of temperature, humidity and the frequency of the sound. This attenuation can be up to 2 dB over 1,000 feet. Such attenuation is short term and, since it occurs over a great distance, should not be considered in calculations. Higher temperatures tend to increase sound velocity but does

not have an effect on the SPL. Sound waves bend towards cooler temperatures. Temperature inversions may cause temporary problems when cooler air is next to the earth allowing for more distant propagation of sound. Similarly, sound waves will bend towards water when it is cooler than the air and bounce along the highly reflective surface. Consequently large water bodies between the sound source and the receptor may affect noise attenuation over distance.

4. Time of Year - Summer time noises have the greatest potential for causing annoyance because of open windows, outside activities, etc. During the winter people tend to spend more time indoors and have the windows closed. In general, building walls and windows that are closed provide a 15 dB reduction in noise levels. Building walls with the windows open allow for only a 5 dB reduction in SPL.
5. Wind - Wind can further reduce the sound heard at a distance if the receptor is upwind of the sound. The action of the wind disperses the sound waves reducing the SPLs upwind. While it is true that sound levels upwind of a noise source will be reduced, receptors downwind of a noise source will not realize an increase in sound level over that experienced at the same distance without a wind. This dispels the common belief that sound levels are increased downwind due to wind carrying noise.
6. Land forms and structures - In certain circumstances, sound levels can be accentuated or focused by certain features to cause adverse noise impacts at specified locations. At a hard rock mine, curved quarry walls may have the potential to cause an amphitheater effect while straight cliffs and quarry walls may cause an echo. Buildings that line streets in cities can cause a canyon effect where sound can be reflected from the building surfaces similar to what might happen in a canyon. Consideration of noise impacts associated with these types of conditions may require specialized expertise to evaluate impact potential and to formulate suitable mitigation techniques.

Consideration of existing noise sources and sound receptors in proximity to a proposed activity can be important considerations even when the activity under review is not a noise source. Topography, vegetation, structures and the relative location of noise receptors and sources to these features are all aspects of the environmental setting that can influence noise impact potential. As such, land alteration may also indirectly create an adverse noise impact where natural land features or manmade features serve as a noise barrier or provide noise attenuation for existing sources of noise, i.e. highway, railroads, manufacturing activity. Removal of these features, i.e. hills, vegetation, large structures or walls, can expose receptors to increased sound pressure levels causing noise problems where none had previously existed.

## B. Impact Assessment

### 1. Factors to Consider

Factors to consider in determining the impact of noise on humans, are as follows:

#### a. Evaluation of Sound Characteristics

- (1) Ambient noise level - A noise can only intrude if it differs in character or SPL from the normal ambient sound. Most objective attempts to assess nuisance noise adopt the technique of comparing the noise with actual ambient sound levels or with some derived criterion.
- (2) Future noise level - The ambient noise level plus the noise level from the new or proposed source.
- (3) Increase In Sound Pressure Level - A significant factor in determining the annoyance of a noise is Sound Pressure Level (SPL). SPLs are measured in decibels.
- (4) Sharp and Startling Noise - These high frequency and high intensity noises can be extremely annoying. When initially evaluating the effects

of noise from an operation, pay particular attention to noises that can be particularly annoying. One such noise is the back-up beepers required to be used on machinery. They definitely catch one's attention as they were meant to do. Continual beeping by machinery can be mitigated (see Section V.C. Mitigation - Best Management Practices). Another impulse noise source that can be very annoying is the exhaust from compressed air machinery. This exhaust is usually released in loud bursts. Compressed air exhaust can also be mitigated if it causes a noise problem by using readily available mufflers or specifically designed enclosures.

- (5) Frequency and Tone - Frequency is the rate at which a sound source vibrates or makes the air vibrate. Frequency is measured in Hertz (Hz). Frequency can also be classified as high ("sharp"), low ("dull"), and moderate. Pure tones are rare in nature. Tonal sounds usually consist of pure tones at several frequencies. Pure tones and tonal sounds are discerned more readily by the human ear. Pure tones and tonal sounds are compensated for in sound studies by adding a calculated number of dB(A) to the measured sound pressure.
- (6) Percentile of Sound Levels - Fluctuations of SPLs can be expressed as a percentile level designated as  $L_{(n)}$  where a given decibel level is exceeded  $n$  % of the time. A designation of  $L_{(10)} = 70$  dBA means the measured SPLs exceeded 70 dBA 10% of the time. A designation of  $L_{(90)} = 70$  dBA means the measured SPLs were exceeded 90% of the time.  $L_{(90)}$  is often used to designate the background noise level.
- (7) Expression of Overall Sound - Part of the overall assessment of sound is the *Equivalent Sound Level* ( $L_{eq}$ ) which assigns a single value of sound level for a period of time in which varying levels of sound are experienced over that time period. The  $L_{eq}$  value provides an indication of the effects of sound on people. It is also useful in establishing the ambient sound levels at a potential noise source.

In order to evaluate the above factors in the appropriate context, one must identify the following: 1) appropriate receptor locations for sound level calculation or measurement; 2) ambient sound levels and characteristics at these receptor locations; and 3) the sound pressure increase and characteristics of the sound that represents a significant noise effect at a receptor location.

b. Receptor Locations

Appropriate receptor locations may be either at the property line of the parcel on which the facility is located or at the location of use or inhabitation on adjacent property. The solid waste regulations require the measurements of sound levels be at the property line. The most conservative approach utilizes the property line. The property line should be the point of reference when adjacent land use is proximal to the property line. Reference points at other locations on adjacent properties can be chosen after determining that existing property usage between the property line and the reference point would not be impaired by noise, i.e., property uses are relatively remote from the property line. The location of the facility should be shown on a map in relation to each potential receptor. Any future expansion should be described in a narrative as well as depicted on a map. The map and narrative should also include the distance of the operation to each point of reception including the distance at the point in time when an expanding operation will be closest to the receptors.

c. Thresholds for Significant Sound Pressure Level (SPL) Increase

The goal for any permitted operation should be to minimize increases in sound pressure level above ambient levels at the chosen point of sound reception. Increases ranging from 0-3 dB should have no appreciable effect on receptors. Increases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive of receptors are present. Sound pressure increases of more than 6 dB may require a closer analysis of impact potential depending on



existing SPLs and the character of surrounding land use and receptors. SPL increases approaching 10 dB result in a perceived doubling of SPL. The perceived doubling of the SPL results from the fact that SPLs are measured on a logarithmic scale. An increase of 10 dB(A) deserves consideration of avoidance and mitigation measures in most cases. The above thresholds as indicators of impact potential should be viewed as guidelines subject to adjustment as appropriate for the specific circumstances one encounters.

Establishing a maximum SPL at the point of reception can be an appropriate approach to addressing potential adverse noise impacts. Noise thresholds are established for solid waste management facilities in the Department's Solid Waste regulations, 6 NYCRR Part 360. Most humans find a sound level of 60 - 70 dB(A) as beginning to create a condition of significant noise effect (EPA 550/9-79-100, November 1978). In general, the EPA's "Protective Noise Levels" guidance found that ambient noise levels  $\#$  55 dBA  $L_{(dn)}$  was sufficient to protect public health and welfare and, in most cases, did not create an annoyance (EPA 550/9-79-100, November 1978). In non-industrial settings the SPL should probably not exceed ambient noise by more than 6 dB(A) at the receptor. An increase of 6 dB(A) may cause complaints. There may be occasions where an increase in SPLs of greater than 6 dB(A) might be acceptable. The addition of any noise source, in a non-industrial setting, should not raise the ambient noise level above a maximum of 65 dB(A). This would be considered the "upper end" limit since 65 dB(A) allows for undisturbed speech at a distance of approximately three feet. Some outdoor activities can be conducted at a SPL of 65 dB(A). Still lower ambient noise levels may be necessary if there are sensitive receptors nearby. These goals can be attained by using the mitigative techniques outlined in this guidance.

Ambient noise SPLs in industrial or commercial areas may exceed 65 dB(A) with a high end of approximately 79 dB(A) (EPA 550/9-79-100, November 1979). In these instances mitigative measures utilizing best management practices should be used in an effort to ensure that a facility's generated sound levels are at a minimum. The goal in an industrial/commercial area, where ambient SPLs are already at a high level, should be not to exceed the ambient SPL. Remember, if a new source

operates at the same noise level as the ambient, then 3 dB(A) must be added to the existing ambient noise level to obtain the future noise level. If the goal is not to raise the future noise levels the new facility would have to operate at 10 dB(A) or more lower than the ambient.(see Table A)

Table B  
HUMAN REACTION TO INCREASES IN SOUND PRESSURE LEVEL

<b>Increase in Sound Pressure (dB)</b>	<b>Human Reaction</b>
Under 5	Unnoticed to tolerable
5 - 10	Intrusive
10 - 15	Very noticeable
15 - 20	Objectionable
Over 20	Very objectionable to intolerable

(Down and Stocks - 1978)

Impact assessment will vary for specific project reviews, but must consist of certain basic components for all assessments. Additional examination of sound generation and noise reception are necessary, where circumstances warrant. Sound impact evaluation is an incremental process, with four potential outcomes:

- Ⓒ exemption criteria are met and no noise evaluation is required;
- Ⓒ noise impacts are determined to be non-significant (after first-level evaluation);
- Ⓒ noise impacts are identified as a potential issue but can be readily mitigated (after second level evaluation); or
- Ⓒ noise impacts are identified as a significant issue requiring analysis of alternatives as well as mitigation (third level evaluation).

All levels of evaluation may require preparation of a noise analysis. The required scope of noise impact analysis can be rudimentary to rather sophisticated, depending on circumstances and the results obtained from initial levels of evaluation. Recommendations for each level of evaluation are presented below.

## 2. Situations in Which No Noise Evaluation is Necessary

When certain criteria are satisfied, the need for undertaking a noise impact analysis at any level is eliminated. These criteria are as follows:

- a. The site is contained within an area in which local zoning provides for the intended use as a “right of use”. It does not apply to activities that are permissible only after an applicant is granted a special use permit by the local government; and
- b. The applicant’s operational plan incorporates appropriate best management practices (BMPs [see Section V.C. Mitigation - Best Management Practices]) for noise control for all facets of the operation.

Where activities may be undertaken as a “right of use”, it is presumed that noise has been addressed in establishing the zoning. Any residual noise that is present following BMP implementation should be considered an inherent component of the activity that has been found acceptable in consideration of the zoning designation of the site.

## 3. First Level Noise Impact Evaluation

The initial evaluation for most facilities should determine the maximum amount of sound created at a single point in time by multiple activities for the proposed project. All facets of the construction and operation that produce noise should be included such as land clearing activities (chain saw and equipment operation), drilling, equipment operation for excavating, hauling or conveying materials, pile driving, steel work, material processing, product storage and removal. Land clearing and construction may be only temporary noise at the site whereas the ongoing operation of a facility would be considered permanent noise. An analysis may be required for

various phases of the construction and operation of the project to assure that adverse noise effects do not occur at any phase.

To calculate the sound generated by equipment operation, one can consult the manufacturers' specifications for sound generation, available for various types of equipment. Another option for calculating the sound to be generated by equipment is to make actual measurements of sound generated by existing similar equipment, elsewhere.

Tables C and D summarize noise measurements from some common equipment used in construction and mining. Table E summarizes the noise level, in decibels (dB[A]), from some common sources. This information can be used to assist Department staff in relating potential noise impacts to sound levels produced by commercial and industrial activities. Use of these tables in the first level of analysis will help determine whether or not noise will be an issue and whether actual measurements should be made to confirm noise levels.

Table C  
PROJECTED NOISE LEVELS

Noise Source	Measurements	1,000 feet	2,000 feet	3,000 feet
Primary and secondary crusher	89 dB(A) at 100 ft	69.0 dB(A)	63.0 dB(A)	59.5 dB(A)
Hitachi 501 shovel loading	92 dB(A) at 50 ft	66.0 dB(A)	60.0 dB(A)	56.5 dB(A)
Euclid R-50 pit truck loaded	90 dB(A) at 50 ft	64.0 dB(A)	58.0 dB(A)	54.4 dB(A)
Caterpillar 988 loader	80 dB(A) at 300 ft	69.5 dB(A)	63.5 dB(A)	60.0 dB(A)

(The Aggregate Handbook, 1991)

Table D  
Common Equipment Sound Levels

EQUIPMENT	DECIBEL LEVEL	DISTANCE in feet
Augered earth drill	80	50
Backhoe	83-86	50
Cement mixer	63-71	50
Chain saw cutting trees	75-81	50
Compressor	67	50
Garbage Truck	71-83	50
Jackhammer	82	50
Paving breaker	82	50
Wood Chipper	89	50
Bulldozer	80	50
Grader	85	50
Truck	91	50
Generator	78	50
Rock drill	98	50

(excerpt and derived from Cowan, 1994)

Table E

Sound Source	dB(A) <sup>o</sup>	Response Criteria
	150	
Carrier Deck Jet Operation	140	
	130	Painfully Loud Limit Amplified Speech
Jet Takeoff (200 feet) Discotheque Auto Horn (3 feet) Riveting Machine	120	
	110	Maximum Vocal Effort
Jet Takeoff (2000 feet) Shout (0.5 feet)	100	
N.Y. Subway Station Heavy Truck (50 feet)	90	Very Annoying Hearing Damage (8 hours, continuous exposure)
Pneumatic Drill (50 feet)	80	Annoying
Freight Train (50 feet) Freeway Traffic (50 feet)	70	Telephone Use Difficult Intrusive
Air Conditioning Unit (20 feet)	60	
Light Auto Traffic (50 feet)	50	Quiet
Living Room Bedroom	40	
Library Soft Whisper (15 feet)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

(The Aggregate Handbook, 1991)

The sound level at receptor locations should be calculated using the inverse square rule whereby sound is attenuated over distance. Again, each doubling of the distance from the source of a noise decreases the SPL by 6 dB(A) at distances greater than 50 feet. This calculation should first consider the straight line distance between the point of noise generation and the point of noise reception with the presumption that no natural or manmade features exist along the transect between the two points that would further attenuate sound level. Calculations should be performed for each point of reception in all directions being careful to evaluate the worst case noise impact potential by considering activities at the point where they would be closest to a receptor. The sound level calculated for the point of reception should be related to ambient sound levels. Ambient sound levels can be either measured or assumed based on established references for the environmental setting and land use at the point of reception. For estimation purposes, ambient SPLs will vary from approximately 35 dB(A) in a wilderness area to approximately 87 dB(A) in a highly industrial setting. A quiet seemingly serene setting such as rural farm land will be at the lower end of the scale at about 45 dB(A), whereas an urban industrial area will be at the high end of this scale at around 79 dB(A) (EPA 550/9-79-100, November 1978). If there is any concern that levels based on reference values do not accurately reflect ambient SPL, field measurements should be undertaken to determine ambient SPLs.

Where this evaluation indicates that sound levels at the point of reception will not be perceptible, similar to or only slightly elevated as compared to ambient conditions, no further evaluation is required. When there is an indication from this initial analysis that marginal or significant noise impact may occur, further evaluation is required. In determining the potential for an adverse noise impact, consider not only ambient noise levels, but also the existing land use, and whether or not an increased noise level or the introduction of a discernable sound, that is out of character with existing sounds, will be considered annoying or obtrusive. (see B.1.a Evaluation of Sound Characteristics)

#### 4. Second Level Noise Impact Evaluation

Further refine the evaluation of noise impact potential by factoring in any additional noise attenuation that will be provided by existing natural topography, fabricated structures such as buildings, walls or berms or vegetation located between the point of noise generation and noise reception. This analysis may require consideration of future conditions and the loss of natural noise buffers over time.

Dense vegetation that is at least 100 feet in depth will reduce the sound levels by 3 to 7 dB(A). Evergreens provide a better vegetative screen than deciduous trees. Keep in mind that if a vegetative screen does not currently exist, planting a vegetative screen may require 15 or more years of growth before it becomes effective.

The degree to which topography attenuates noise depends on how close the feature is located to the source or the receptor of the noise. Topography can act as a natural screen. The closer a hill or other barrier is to the noise source or the receptor, the larger the sound shadow will be on the side opposite the noise source. Certain operations such as mining and landfills may be able to use topography to maintain a screen between the operation and receptors as they progress. Mining operations may be able to create screens by opening a mine in the center of the site using and maintaining the pit walls as barriers against sound (Aggregate Handbook, 1991).

If after taking into account all the attenuating features the potential still exists for adverse noise impact, other types of noise analyses or modeling should be used to characterize the source. An Equivalent Sound Level ( $L_{eq}$ ) analysis or a related type of noise analysis may better define activities or sources that require more mitigation or isolation so that noise emanating from these sources will not cause an adverse impact.

Where it is demonstrated that noise absorbing or deflecting features further attenuate sound reception to a level of no significant increase, no further analysis is necessary. Where it is determined that noise level or the character of the noise may



have a significant adverse effect on receptors, other noise mitigation measures should be evaluated in an expanded noise analysis.

#### 5. Third Level - Mitigation Measures

When the above analyses indicate significant noise effects may or will occur, the applicant should evaluate options for implementation of mitigation measures that avoid, or diminish significant noise effects to acceptable levels (see Section V.C. Mitigation - Best Management Practices). Adequate details concerning mitigation measures and an evaluation of the effectiveness of the mitigative measures through additional sound level calculations should be provided in a noise analysis. These calculations are to factor in the noise reduction or avoidance capabilities of the mitigation measures. In circumstances where noise effects cannot readily be reduced to a level of no significance by project design or operational features in the application, the applicant must evaluate alternatives and mitigation measures in an environmental impact statement to avoid or reduce impacts to the maximum extent practicable per the requirements of the State Environmental Quality Review Act (SEQR).

The noise analysis should be part of the application or a supplement to it, and will be part of the SEQR environmental assessment by reference. Duplicative noise analysis information is not required for the permit application and the assessment of impacts under SEQR. A proper analysis can satisfy information needs for both purposes.

### C. Mitigation - Best Management Practices (BMP) for Reducing Noise

Various noise abatement techniques are available for reducing frequency of sound, duration of sound or SPLs at receptor locations. The mitigation techniques given below are listed according to what sound characteristic they mitigate.

1. Reduce noise frequency and impulse noise at the source of generation by:
  - a. Replacing back-up beepers on machinery with strobe lights (subject to other requirements, e.g., OSHA and Mine Safety and Health Administration, as applicable). This eliminates the most annoying impulse beeping;
  - b. Using appropriate mufflers to reduce the frequency of sound on machinery that pulses, such as diesel engines and compressed air machinery;
  - c. Changing equipment: using electric motors instead of compressed air driven machinery; using low speed fans in place of high speed fans;
  - d. Modifying machinery to reduce noise by using plastic liners, flexible noise control covers, and dampening plates and pads on large sheet metal surfaces; and
2. Reduce noise duration by:
  - a. Limiting the number of days of operation, restricting the hours of operation and specifying the time of day and hours of access and egress can abate noise impacts.
  - b. Limiting noisier operations to normal work day hours may reduce or eliminate complaints.

Limiting hours of construction or operation can be an effective tool in reducing potential adverse impacts of noise. The impacts of noise on receptors can be

significantly reduced by effectively managing the hours at which the loudest of the operations can take place.

Implementation of hours of operation does not reduce the SPL emanating from a facility. Determining whether or not hours of operation will be effective, mitigation requires consideration of: public safety, for example road construction at night may reduce traffic concerns and facilitate work; duration of the activity, is it a one time event necessary to meet a short term goal or will the activity become an ongoing operation; and surrounding land use, consider what type(s) of land use is proximal to the activity and at what time(s) might a reduction of noise levels be necessary. There may be other factors to consider due to the uniqueness of a given activity or the type of land use adjacent to the activity. Hours of operation should also consider weekend activities and legal holidays that may change the types of land use adjacent to the permitted activity or increase traffic levels in an area.

The best results from using hours of operation as a mitigative measure will be obtained if the hours are negotiated with the owner or operator of the facility. The less noisy aspects of an operation may not have to be subject to the requirements of hours of operation such as preparing, greasing and maintaining machinery for the upcoming day's operation. The more noisy operations can be scheduled to begin when people in the receptor area are less likely to be adversely effected. Hours of operation should be included in the operation plans for a facility that becomes part of the permit, or in the event that there is no operation plan, can be included as a permit condition.

3. Reduce Noise sound pressure levels by:

- a. Increasing the setback distance.
- b. Moving processing equipment during operation further from receptors.
- c. Substituting quieter equipment (example - replacing compressed air fan with an electric fan could result in a 20 dB reduction of noise level).

- d. Using mufflers selected to match the type of equipment and air or gas flow on mechanical equipment.
- e. Ensuring that equipment is regularly maintained.
- f. Enclosing processing equipment in buildings (example - enclosing noisy equipment could result in an 8-10 dB noise level reduction, a 9 inch brick wall can reduce SPL by 45-50 dB).
- g. Erecting sound barriers such as screens or berms around the noise generating equipment or near the point of reception. The angle of deflection also increases as the height of a screen or barrier increases. Screens or barriers should be located as close to the noise source or the receptor as possible. The closer the barrier is located to the source or the receptor, the greater the angle of deflection of the sound waves will be creating a larger “sound shadow” on the side opposite the barrier. Stockpiles of raw material or finished product can be an effective sound barrier if strategically placed.
- h. phasing operations to preserve natural barriers as long as possible.
- i. altering the direction, size, proximity of expanding operations.
- j. Designing enclosed facilities to prevent or minimize an SPL increases above ambient levels. This would require a noise analysis and building designed by a qualified engineer that includes adequate ventilation with noise abatement systems on the ventilation system.

Public notification of upcoming loud events can also be used as a form of mitigation although it doesn't fit easily into the categories above. People are less likely to get upset if they know of an upcoming event and know that it will be temporary.

The applicant should demonstrate that the specific mitigation measures proposed will be effective in preventing adverse noise effects on receptors.

#### D. Decision Making - Conditioning Permits to Limit Noise Impacts

Preferably, the mitigation measures as outlined in the construction and operational plans should be relied upon to mitigate the effects of noise on receptors. The permit should state that the activity will be conducted in accordance with the approved plan. Otherwise, mitigation measures and BMP's can be imposed within specific permit conditions.

It is not the intention of this guidance to require decibel limits to be established for operations where such limits are not required by regulation. There are, however, instances when a decibel limit may be established for an operation to ensure activities do not create unacceptable noise effects, as follows:

1. The review of a draft and final environmental impact statement demonstrates the need for imposition of a decibel limit;
2. A decibel limit is established by the Commissioner's findings after a public hearing has been held on an application;
3. The applicant asks to have a decibel limit to demonstrate the ability to comply; or
4. A program division seeks to establish a decibel limit as a permit condition, when necessary to demonstrate avoidance of unacceptable noise impact.

Ultimately, the final decision must incorporate appropriate measures to minimize or avoid significant noise impacts, as required under SEQR. Any unavoidable adverse effects must be weighed along with other social and economic considerations in deciding whether to approve or deny a permit.

## **REFERENCES**

- 1) Cowan, James P., Handbook of Environmental Acoustics, Van Nostrand Reinhold, 1994.
- 2) Down, C.G. and Stocks, J.; Environmental Impact of Mining. Applied Science Publishers Ltd., ISBN 0853347166, 1978.
- 3) U.S. Dept of Transportation - Federal Highway Administration Office of Research and Development; Highway Noise-A Manual for Highway Noise and Land Use, Nov. 1974.
- 4) New York State Motor Vehicle Law, Chapter IV, Subchapter E, 450.2, Part 450, "Noise From Heavy Motor Vehicles," 200.701 CN, February 28, 1997.
- 5) Beranek, L.A. ed., Noise and Vibration Control. Cambridge, MA: Institute of Noise Control Engineering, 1971, pp. 164-174 and 182-191.
- 6) Barksdale, R.D., editor, 1991. The Aggregate Handbook: National Stone Association (Washington, DC), 1.V.
- 7) Norman, David K., Wampler, Peter J., Throop, Allen H., Schnitzer, E. Frank, and Roloff, J., 1996. "Best Management Practices for Reclaiming Surface Mines in Washington and Oregon." Oregon Dept. of Geology and Mineral Industries, Open File Report 0-96-2.
- 8) United States Environmental Protection Agency, Protective Noise Levels, Condensed Version of EPA Levels document, EPA 550/9-79-100, November 1978, Office of Noise Abatement & Control, Washington, D.C.
- 9) United States Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, EPA 550/9-74-004, March 1974, Office of Noise Abatement and Control, Washington, D.C.
- 10) City of Davis General Plan, Appendix E Background Information on Environmental Acoustics, November 1996.

- 11) The Australian National University, "Physics and Psychophysics of Music", ACAT 1003, David Worrall, <http://www.anu.edu.au/ITA/ACAT/drw/PPofM/Intensity2.html>, 1998.
- 12) Danish Wind Turbine Manufacturers Association, Measuring and Calculating Sound Levels, November 18, 1997.

#### Additional Reading

- a. Beranek, Leo L. and Istavan L. Ver, Noise and Vibration Control Engineering, John Wiley & Sons, Inc. New York, 1992.
- b. Beranek, Leo L., Noise and Vibration Control, Institute of Noise Control Engineering, Revised Edition, Washington, C.C., 1988.
- c. Diehl, George, M., Machinery Acoustics, John Wiley & Sons, New York, 1973.
- d. Erwin, J.D., Graf, E. R., Industrial Noise and Vibration Control, Prentice Hall, Englewood Cliffs, New Jersey, 1979.
- e. Jensen, Paul, et al, Industrial Noise Control Manual, U.S. Department of Health, Education and Welfare, Public Health Service, Cincinnati, 1978.





Michael P. Naughton, Esq.

New York State Department of Environmental Conservation, Division of Legal Affairs

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I. Issues that should **not** be addressed with a SEQRA environmental review

**A. Purely Economic Factors**

Ridgewood-Bushwick Senior Citizens Council v. Giuliani, et al., 227 AD2d 261, 642 NYS2d 662 (1<sup>st</sup> Dept 1996).

Appellate Court reversed trial court decision to annul New York City Department of Aging's (DFTA) award of home care services contracts to a for-profit enterprise, and reinstated the determination to change the let of contracts from previously not-for-profit enterprises. Court held that it was impermissible for the lower court to conclude that an environmental "assessment" should have preceded the action. Court said that economic injury, couched in environmental terms, is not within "SEQRA's zone of interest."

**B. Aesthetics not supported by substantial evidence or a local land use law**

Matter of WEOK v. Planning Board, 79 NY2d 373, 583 NYS2d 170 (1992).

The Planning Board for the Town of Lloyd denied WEOK Broadcasting Corporation's application for site plan approval to construct an AM radio transmitter facility consisting of 5 radio towers. The board issued a positive declaration and directed WEOK to file an EIS that would consider visual impacts of the tower. The applicant submitted a DEIS that contained a visual impact analysis that concluded there would be minor visual impacts. The lower court annulled the Town Board's denial and granted the application and found "nothing in the record other than generalized complaints ..." and that the Board's finding to be unsupported by substantial evidence. Court of Appeals affirmed stating that it was proper for the Board to consider aesthetic impacts, however, these considerations alone, unsupported by substantial evidence, may not serve as the basis for denying the application.

**C. Others**

**(1) Correctional Facilities**

Cohalan v. Carey, 88 AD2d 77, 452 NYS2d 639 (2d Dept.), *appeal dismissed* 57 NY2d 672 (1982).

Harlem Valley United Coalition v. Hall, 80 AD2d 851, 436 NYS2d 764 (2d Dept), *aff'd*, 54 NY2d 977 (1981).

**(2) Homeless Shelters**

Briarwood Community Assc. v. City of New York, 147 AD2d 639, 538 NYS2d 45 (2d Dept), *leave to appeal denied*, 74 NY2d 601 (1989).

Plotnick v. City of New York, 148 AD2d 721, 539 NYS2d 395 (2d Dept), *leave to appeal denied*, 74 NY2d 601 (1989).

**(3) Community Residences**

Hazan v. Howe, 214 AD2d 797, 625 NYS2d 670 (3d Dept 1995).

West 97<sup>th</sup>-West 98<sup>th</sup> Streets Block. Assc. v. Volunteers of America of Greater New York, 153 Misc2d 321, 581 NYS2d 523 (Sup Ct NY Co. 1991).

Jennings v. New York State Office of Mental Health, 90 NY2d 227, 660 NYS2d 352 (1997).

**(4) Public Facilities**

Engle v. Pulver, 80 AD2d 598, 436 NYS2d 39 (2d Dept 1981).

Hopkins v. West Genesee Central School District, 99 Misc2d 216, 415 NYS2d 774 (Sup Ct Onondaga Co. 1979).

## **II. Incorporation of Community Character Issues Into Environmental Reviews, or Issues that can be addressed with a SEQRA environmental review**

### **A. Generally - Early Case Law**

Matter of Tuxedo Taxpayers Assoc. v. Town Board of the Town of Tuxedo, 96 Misc2d 1, 408 NYS2d 668 (Sup Ct, Orange Co. 1978).

The town board approved a special permit allowing the construction of a 3,900 unit development. The court annulled the town board's acceptance of the FEIS and issuance of the special permit and found that the lead agency (town board) failed to follow SEQRA by not allowing an adequate time for other involved agencies to review the FEIS. The town board approved the project only four business days after the EIS had been filed with DEC and the other involved agencies. This was one of the first cases to recognize that agencies had to "assess and weigh environmental factors along with social, economic and other relevant considerations" when evaluating whether to approve an action.

H.O.M.E.S., et al., v. New York State Urban Development Corporation, et al., 69 AD2d 222, 418 NYS2d 827 (4<sup>th</sup> Dept 1979).

The Syracuse Carrier Dome case. The Court held that the lead agency (UDC) failed to consider the impacts from increased traffic (the new stadium would increase the seating capacity from 24,000 to 50,000 spectators), and "vaguely recognized" the existence of the potential adverse effects from traffic stoppage, parking, air pollution or noise level damage. The court said the environmental review should have considered how the traffic problems would affect the existing community character.

### **B. Existing Land Use**

Chinese Staff and Workers Association v. City of New York, 68 NY2d 359, 509 NYS2d 499 (1986).

A local community group objected to the construction of the Henry Street Tower in a special Manhattan bridge district. The issue presented was whether the City's environmental review was arbitrary and capricious because of their failure to consider whether the introduction of luxury housing into Chinatown would accelerate the displacement of local low-income residents and businesses, and in doing so, alter the character of the community. This effect, known as gentrification, was not addressed in the city's review of the project. The court held that existing patterns of population concentration, distribution or growth and existing community or neighborhood character are physical conditions within the meaning of environment and thus should be considered when making a determination of significance. The court ordered the City to consider the long term displacement effects on local residences and businesses, and those effects should be reviewed pursuant to CEQR/SEQRA.

Jackson v. New York State Urban Development Corporation, 67 NY2d 400, 503 NYS2d 298, (1986).

The New York State Urban Development Corporation (UDC) and the City of New York agreed to cooperate in a plan, with private participation, to redevelop Times Square in Manhattan. The Petitioners were individuals who worked, owned buildings or lived in the area. One allegation, inter alia, concerned the failure of the environmental review to adequately address impacts on the elderly, and how the agencies failed to adopt effective measures to mitigate displacement by gentrification. The court held that the UDC specified the effect the project would have on the environment and the residents of the community. The FEIS discussed the environmental impact on the community as a whole, recognized that many of the residents were of low to moderate income, and discussed their displacement due to rising real estate values. The court concluded that separate consideration should not be given specifically to the elderly by reasoning that displacement affects other groups such as children and minorities.

Akpan v. Koch, 75 NY2d 561, 555 NYS2d 16 (1990).

Court of Appeals upheld the Board of Estimate of the City of New York's environmental review of the Atlantic Terminal Urban Renewal project on the grounds that the agency complied with

SEQRA when it considered the effects of “secondary displacement” throughout the review process. The rationale for its approval was sustained even in light of the fact that the raw data from the “protected housing study” was not included within the FEIS.

Matter of Strykers Bay Neighborhood Association v. City of New York, 144 AD2d 283, 533 NYS2d 882 (1<sup>st</sup> Dept 1988).

Appellate Court held that it was improper for the Supreme Court (New York County) to direct the co-lead agencies to prepare an EIS for a west side urban renewal project based solely on the admission that gentrification was not taken into consideration. The court remanded to the lead agencies to make an administrative determination that the project would have a significant impact on the environment.

### **C. Aesthetics**

Matter of Watch Hill Homeowners Assc., et al. v. Town Board of the Town of Greenburgh, 226 AD2d 1031, 641 NYS2d 443 (3d Dept 1996).

Town Board adopted a negative declaration for the construction of a 200-foot tall, 1,000,000-gallon municipal water tank. The Court annulled the determination and declared the resolution authorizing said action to be invalid, but stopped short of requiring any affirmative action on the newly completed tower. The town did discuss mitigation measures such as plantings at the tower’s base and painting the structure to match the sky, however, the board failed to consider fully the potential effects on aesthetic resources such as the nearby County park.

#### **(1) Aesthetics & Economic Impacts**

East Coast Development v. Kay, et al., 174 Misc2d 430, 667 NYS2d 182 (3d Dept 1996).

The City of Ithaca Planning Board denied site plan approval for the construction of a commercial building for a Wal-Mart store. Court held that the board’s decision could not be sustained if based solely on the adverse effect the store would have on the existing downtown retail marketplace. The Planning Board considered both environmental impacts and economic impacts. The Court upheld Board’s determination to deny the application based on visual impacts to observation points between nearby Buttermilk Falls State Park and the project site. The court held that the City’s denial was supported by substantial evidence when considering only the environmental issues relating to aesthetics, but warned that the City had impermissibly considered purely economic impacts associated with having a Wal-Mart store in the area.

Wal-Mart v. Planning Board for the Town of North Elba, 238 AD2d 93, 668 NYS2d 774 (3d Dept. 1998).

Wal-Mart applied for (1) a conditional use permit, and (2) site plan approval for a proposed building at a site located near the “western gateway” to Lake Placid. The planning board for the Town of North Elba assumed lead agency, and after a DEIS was filed in March, 1995, the board voted to deny the application in January, 1996. The court held that it was permissible for the planning board to consider the economic impacts of the action as it relates to the community character. It is not permissible to consider purely economic impacts such as competition, however, the court recognized that the potential for empty store fronts should factor into the overall character of the community.

On the issue of adverse visual impacts, the court held that it was permissible for the lead agency to consider one of the identified mitigation measures as an adverse impact. The board required mitigation measures to lessen the effect of the store on the viewshed. One of the measures was the construction of a berm to partially hide the proposed store, and the board is able to consider whether this mitigating measure in fact ameliorate the adverse visual effects. The court found that the conclusions concerning the negative aesthetic impact of the project as a whole were supported by the record.

One of the key aspects of this case was the fact that the court did not look to whether the visual impact analysis was supported by substantial evidence in the record. As the decision here states,

the Court of Appeals had previously held that aesthetic considerations alone, unsupported by substantial evidence, could not serve as the basis for denying approval of an action. The court here looked to the language of the local regulation to provide the basis for the denial.

## **(2) Substandard & Dilapidated Housing**

Matter of Susie Jackson, et al., v. City of New Rochelle et al., 145 AD2d 484, 535 NYS2d 741 (2d Dept 1988).

Negative declaration by City upheld in connection with the purchase of three two-family houses for the purpose of demolishing them to make room for a 58-car parking lot. The City determined that the elimination of "substandard and dilapidated housing" would not have a significant effect on the character of the existing community. As an aside and not affecting the main challenge before the court, the appellate division court held that homeless persons do not have standing under SEQRA to challenge a local agency's determination because they "are not residents of the community ... ."

## **D. Historical/Archeological Impacts**

Houser v. Finneran, 99 AD2d 926, 473 NYS2d 50 (3d Dept 1984).

Lorberbaum v. Pearl, 182 AD2d 897, 581 NYS2d 488 (3d Dept 1992).

## **E. Health and Safety**

See H.O.M.E.S., et al., v. New York State Urban Development Corporation, et al., 69 AD2d 222, 418 NYS2d 827 (4<sup>th</sup> Dept 1979).

Board of Cooperative Educational Services of Albany-Schoharie-Schenectady-Saratoga Counties v. Town of Colonie, 268 AD2d 838, 702 NYS2d 219 (3d Dept 2000).

Town's negative declaration for its condemnation of a school's easement for a public road annulled because the town failed to address the (1) impacts associated with the increased use of the public road, and (2) the increased threat to the safety of the school's students. The town Planning Board approved a site plan proposal for an office building located adjacent to and running the entire length of the school's access road. Town initiated condemnation proceeding in order to obtain a curb cut and use of the access road for the office building.

## **F. Recreation and Open Space**

Miller v. City of Lockport, 210 AD2d 955, 620 NYS2d 680 (4<sup>th</sup> Dept 1994).

The court annulled a negative declaration by the City's Common Council and its resolution authorizing the issuance of a special use permit for a proposed material recovery facility and solid waste transfer station. Approximately 1.2 acres of park land was to be transferred from the City to the applicant. The Council found that the facility would have an adverse environmental impact on open space and recreation arising from the sale of the land, and from public access to the remainder of the park being blocked off by the transportation of material to and from the facility each day.